

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel claims 4-5, 11-33, 36-41 and 43-47 as set forth below. Upon entry of these amendments, claims 1-3, 6-10, 34-35 and 42 will be pending.

Listing of Claims

1. (original) A method for:

- (a) differentiating animals and animal products on the basis of breed origin; or
- (b) determining or testing the breed origin of an animal product; or
- (c) validating an animal product;

comprising the steps of:

- (i) providing a sample of the animal product; and
- (ii) analysing the allele(s) of one or more breed determinant genes present in the sample.

2. (original) The method of claim 1 wherein the breed determinant is a monogenic trait.

3. (original) The method of claim 1 wherein the breed determinant is a polygenic trait.

Claims 4-5. (canceled)

6. (original) The method of any one of the preceding claims wherein the breed determinant gene analysed in step (ii) is selected from any of:

- (a) a coat colour gene; and/or
- (b) a coat pattern gene; and/or
- (c) a coat texture gene; and/or
- (d) a coat density gene; and/or
- (e) a coat length gene; and/or
- (f) an ear aspect gene; and/or
- (g) a double muscling gene; and/or

- (h) a horn morphology gene; and/or
- (i) a tusk morphology gene; and/or
- (j) an eye colour gene; and/or
- (k) a plumage gene; and/or
- (l) a beak colour/morphology gene; and/or
- (m) a vocalization (e.g. barking) gene; and/or
- (n) a comb or wattle gene; and/or
- (o) a gene controlling display behaviour.

7. (original) The method of claim 6(a) wherein the coat colour gene is the *KIT* or *α MSHR* gene (for example, the pig *KIT* *α MSHR* or gene).

8. (original) The method of any one of the preceding claims wherein the sample is a nucleic acid sample and the analysing step (ii) comprises DNA or RNA analysis.

9. (original) The method of any one of claims 1-7 wherein the sample is a protein sample and the analysing step (ii) comprises protein analysis.

10. (original) A method of determining the coat colour genotype of a pig which comprises:

- (i) obtaining a sample of pig nucleic acid; and
- (ii) analysing the nucleic acid obtained in (i) to determine which allele or alleles of the *α MSHR* gene is/are present.

Claims 11-33 - (canceled)

34. (original) The method of any one of claims 7, 10, 11, 14-23 and 28-33 wherein the analysis step (ii) comprises restriction fragment length polymorphism (RFLP) analysis, for example involving digesting the pig nucleic acid with one or more of the restriction enzymes *Bst*UI, *Hha*I and/or *Bsp*HI.

35. (original) The method of claim 34 wherein the gene is the pig *α MSHR* gene and the analysis involves identification of a polymorphism at nucleotide position 283, 305, 363, 370, 491, 727, 729 1162 or between nucleotide positions 60 and 70 or between nucleotide positions 1005 and 1010 of the sequence of the pig *α MSHR* gene.

Claims 36-41 - (canceled)

42. (original) A kit for:

- (a) differentiating animal products on the basis of breed origin; or
- (b) determining or testing the breed origin of an animal product; or
- (c) validating an animal product;

comprising one or more reagents for analysing the allele(s) of one or more breed determinant genes present in the sample.

Claims 43-47 - (canceled)